

ABSTRACT

An architecture and method for performing coarse-grain reservation of lightpaths within wavelength-division-multiplexed (WDM) based photonic burst-switched (PBS) networks with variable time slot provisioning. The method employs extensions to the RSVP-TE signaling protocol, which uses various messages to reserve resources. A resource reservation request is passed between nodes during a downstream traversal of the lightpath route connecting a source node to a destination node via one or more switching nodes, wherein each node is queried to determine whether it has transmission resources (*i.e.*, a lightpath segment) available during a future scheduled time period. Soft reservations are made for each lightpath segment that is available using information contained in a corresponding label. If all lightpath segments for a selected route are available, a reservation response message is sent back upstream along the route from the destination node to the source node. In response to receiving the response, the soft reservations are turned into hard reservations at each node.

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